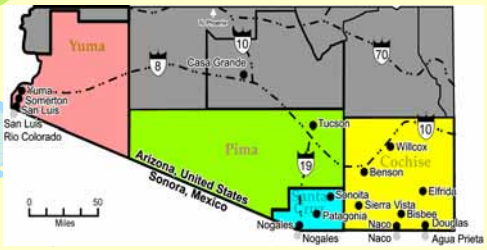
AZ BORDER COMMUNTIES



"Identifying, Addressing, and Resolving Health Disparities Issues Along The U.S.-Mexico Border in Hispanic Diabetics At Risk for Cardiovascular Disease"

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Hispanic Health Disparity

- **The Problem!**
  - Health disparities in Hispanics
  - Diabetes & Cardiovascular Disease (CVD)
- **Measures** of health disparities among Hispanics related to diabetes
  - High rates of diabetes
  - Complications of diabetes, including CVD
  - Lack of diabetes control

Hispanic Health Disparity (II)

- **Addressing** Diabetes-related health disparities
  - Rates of mortality and morbidity
  - Disability
  - Lack of medical care
- **Strategies** for resolving diabetes related health disparities
  - Curriculums
  - Provider education
  - Impact of other risk factors (depression)
  - Access to quality healthcare

Hispanic Health Disparity (III)

- **Strategies** for resolving diabetes related health disparities among Hispanics
  - CBPR/CBPIR
  - Screening for undiagnosed DM and CVD especially in underserved
  - Community mobilization
- **Healthy discussion**
- **WRAP-UP and ACKNOWLEDGEMENTS**

Problem

- Incidence and prevalence of diabetes are increasing worldwide.
- Diabetes complications constitute a burden for the individuals as well as society.
- In 2003, 194 million people were estimated to have diabetes, representing a global prevalence exceeding 3% of the world population.*
- With an increasing trend, diabetes is expected to reach over 300 million by the year 2025.
- Currently, 314 million are estimated to be people in the pre-diabetic stage; at least one third will evolve to the diabetic stage after 10 years.

* A Boutayeb et al.

Diabetes in the United States

- Diabetes and its complications are major causes of morbidity and mortality in the United States
- Over 18 million have it (MMWR)
- An estimated 41 million persons in the United States are at high risk for diabetes
- Is a very important preventable cause for CVD
- Continues to increase and at a faster rate in minorities
- To eliminate racial/ethnic disparities in diabetes prevalence, agencies like CDC and NIH are targeting those populations at greatest risk

Hispanic Diabetes Facts

- Diabetes mellitus is one of the most serious health challenges facing an estimated 27 million Hispanics in the United States (National Diabetes Education Program)
- Hispanics are at higher risk of developing and dying from diabetes, and 2-4 times as likely as other populations to experience complications such as
  - Heart disease
  - High blood pressure
  - Blindness
  - Kidney disease
  - Amputations
  - Nerve damage

Hispanic Incidence & Prevalence Of Diabetes

- Has an earlier onset
- Twice as likely to have than non-Hispanic whites of similar age
- More than 10% of Hispanics 20 years and older have diabetes
- Prevalence of diabetes among 45-74
  - (Nat'L Diabetes Education Program)
    - –23.9% for Mexican Americans
    - –26.1% for Puerto Ricans
    - –15.8% for Cuban-Americans
    - –12% for non-Hispanic whites

More Facts On Hispanic State Of Health

- Hispanics largest and fastest growing ethnic population in the United States
- Underserved by the health-care system
- Less likely seek and receive health-care services
- Poorer health status and higher rates of morbidity and mortality
- Diabetes affects 1 and 4 Hispanics (MMWR)

SOME STATS

Hispanic Disparities (*cf.* Non Hispanic Whites) (US, 2000 – 01)

Economic disparity

- Greatest among younger and older Hispanics (NCHS, 2003)
- Twice as many at ≤ 200% FPL (ADHS, 2004)

Health care access

- Three times more likely to:
  - Lack health insurance (especially Mexican Am.)
  - Report no usual source of health care (NHIS, 2002-03)

Hispanic Self-Reported Health (USA, 2003)

- Excellent or very good health (age & sex adjusted, NHIS, 2002-3)
  - Hispanics 58.4%
  - Non-Hispanic whites 70.8%
- Proportionately more Hispanic adults have depression than non-Hispanic white adults
  - About 1 million Hispanic adults have major depression (Egede, 2004)

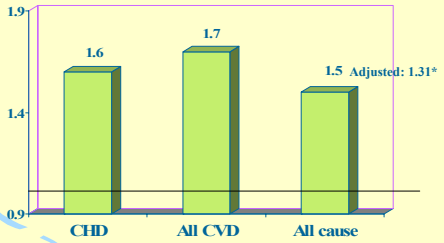
Mortality (AZ, 2002)

- Mortality before reaching average life expectancy
  - Hispanics (mostly Mexican Americans & Mexicans) 70.3%
  - Non-Hispanic Whites 45.6%
- Average age of death
  - Hispanics 58.6 years (decrease from 61.3 years in 1997)
  - Non-Hispanic Whites 74.3 years

Cardiovascular Disease (CVD) Mortality

- Leading cause of death among Hispanics
  - Hispanics often have higher triglycerides and LDL (San Antonio Longitudinal Study of Mexican Americans)
- Hispanic mortality rates are underestimated
  - Misclassification of ethnicity and other ascertainment biases

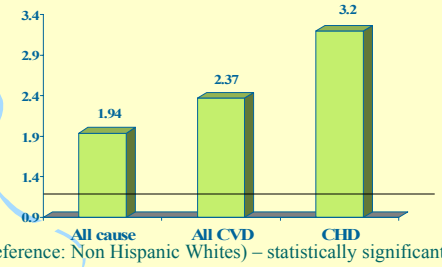
Age and Sex Adjusted Mortality Hazard Ratios



(reference: Non Hispanic Whites)

* SES, diabetes, hypertension, smoking status, history of CVD, history of cancer, obesity and lipids) San Antonio Study of Mex Am

CVD Mortality (Cont.)

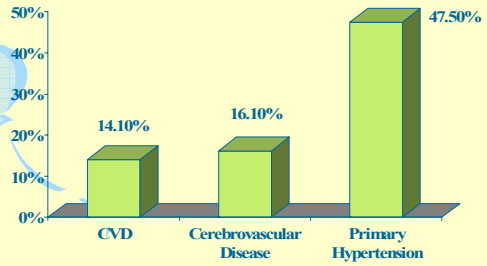


(reference: Non Hispanic Whites) – statistically significant

San Antonio Study of Mexican Americans

Hispanic diabetics who are not using insulin have a significantly higher adjusted hazard ratio than reference group for all cause, CVD, and CHD

CVD Mortality
(% Above State Means) Arizona Hispanics 2001



Diabetes in the US (2002)

- Mortality:
  - 7th leading cause of death overall
  - 3rd leading cause for Hispanic females
  - 4th leading cause for Hispanic males
- Diagnosed diabetes (US, age and sex adjusted)
  - Hispanics 8.9% (Mex/Mex. Am significantly higher)
  - Non-Hispanic whites 5.8%

Obesity (US)

- Age adjusted prevalence
  - Mexican American women 52%
  - Non-Hispanic White women 34%
- Hispanics report
  - Less physical activity
  - Poorer diet

DOUGLAS DIABETES SURVEY PREVALENCE BY AGE

	20-39	40-59	60+	Total
Diabetes				
Previous Dx	12	42	48	102
Elevated RBS*	12	11	9	32***
Elevated FBS**	3	4	1	8***
Total Diabetes	7.10%	17.20%	29.90%	142
Total N	379	332	194	905

*RBS=random blood sugar >200 mg/dl
**FBS=fasting blood sugar >125 mg/dl
(ADHS, 1999)
***40/142=28.2% were undiagnosed

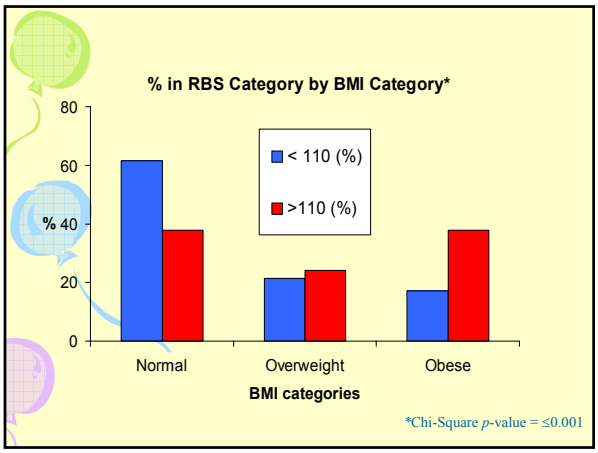
Douglas Diabetes Survey Factors Significantly Related to Diabetes

- Age
- Family history
- Overweight
  - 74% BMI ≥ 25
  - 38% BMI≥ 30

DOUGLAS HIGH SCHOOL SURVEY FINDINGS

(N. DIXIT et al.)

OVER 1,000 STUDENTS PARTICIPATED



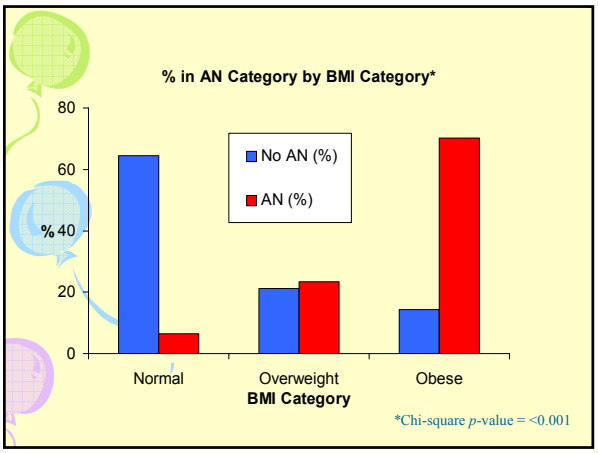
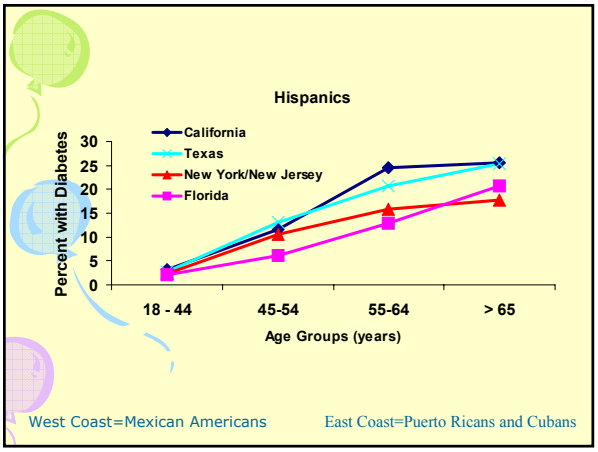


TABLE 1. Prevalence of self-reported diabetes among Hispanics and non-Hispanic whites aged ≥18 years, by age group and area of residence — Behavioral Risk Factor Surveillance System, selected areas*, 1998–2002

	Prevalence of diabetes									
	Age group (yrs)						Adults overall			
	18–44		45–54		55–64		≥65		≥18	≥18†
Area of residence	%	(95% CI§)	%	(95% CI)	%	(95% CI)	%	(95% CI)	% (95% CI)	% (95% CI)
California										
Hispanic	3.2	(2.2–4.2)	11.7	(8.4–15.0)	24.6	(18.3–30.9)	25.6	(19.7–31.5)	7.8 (6.8–8.8)	10.9 (9.5–12.3)
White, non-Hispanic	1.3	(0.9–1.7)	5.0	(4.0–6.0)	9.2	(7.4–11.0)	11.7	(10.3–13.1)	5.1 (4.7–5.5)	4.6 (4.2–5.0)
Florida										
Hispanic	2.2	(1.4–3.0)	6.1	(3.4–8.8)	12.8	(8.5–17.1)	20.6	(16.3–24.9)	6.6 (5.6–7.6)	7.2 (6.0–8.4)
White, non-Hispanic	1.4¶	(1.0–1.8)	6.2¶	(5.2–7.2)	11.0¶	(9.6–12.4)	12.2	(11.2–13.2)	6.6¶ (6.2–7.0)	5.2 (4.8–5.6)
Illinois										
Hispanic	2.0	(0.2–3.8)	15.9	(9.0–22.8)	19.8	(9.4–30.2)	25.8	(13.3–38.3)	6.2 (4.2–8.2)	10.5 (7.6–13.4)
White, non-Hispanic	1.5¶	(1.1–1.9)	4.6	(3.6–5.6)	11.3¶	(9.5–13.1)	15.0¶	(13.4–16.6)	6.0¶ (5.6–6.4)	5.5 (5.1–5.9)
New York/New Jersey										
Hispanic	2.4	(1.4–3.4)	10.5	(7.0–14.0)	15.9	(10.6–21.2)	17.7	(12.0–23.4)	6.2 (5.0–7.4)	8.0 (6.6–9.4)
White, non-Hispanic	1.4¶	(1.2–1.6)	4.4	(3.6–5.2)	9.8	(8.4–11.2)	12.9¶	(11.7–14.1)	5.6¶ (5.2–6.0)	4.9 (4.5–5.3)
Texas										
Hispanic	2.8	(2.2–3.4)	13.0	(9.9–16.1)	20.8	(16.7–24.9)	25.4	(20.3–30.5)	7.1 (6.3–7.9)	10.5 (9.3–11.7)
White, non-Hispanic	1.4	(1.2–1.6)	6.6	(5.6–7.6)	10.5	(9.1–11.9)	11.8	(10.6–13.0)	5.7 (5.3–6.1)	5.1 (4.7–5.5)
Puerto Rico**	2.4	(2.0–2.8)	11.2	(9.8–12.6)	21.2	(19.2–23.2)	25.3	(23.5–27.1)	9.3 (8.7–9.9)	10.0 (9.4–10.6)

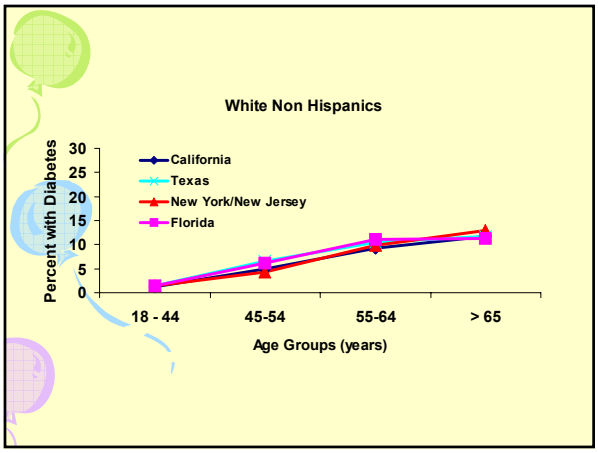
* California, Florida, Illinois, New York/New Jersey, Texas, and Puerto Rico.
† Age adjusted to the 2000 U.S. standard population.
§ Confidence interval.
¶ Not statistically significant ($p \geq 0.05$).
** Hispanics only; non-Hispanic whites were not included because of small sample size.

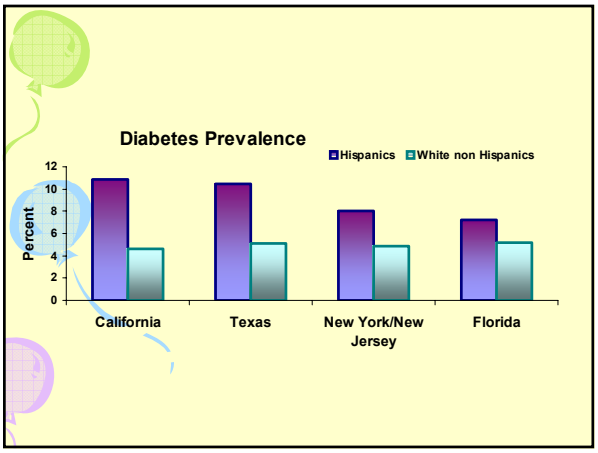
MMWR

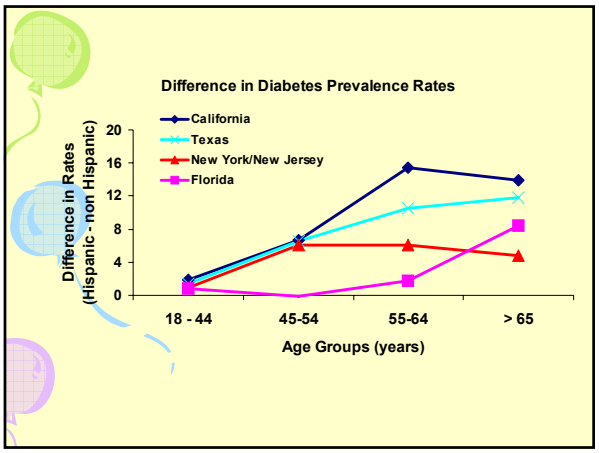


West Coast=Mexican Americans

East Coast=Puerto Ricans and Cubans







NY/NJ vs Puerto Ricans

	18-44	45-54	55-64	65+
NY/NJ	2.4	10.5	15.9	17.7
Puerto Ricians	2.4 (2.0-2.8)	11.2 (9.8-12.6)	21.2 (19.2-23.2)	25.3 (23.5-27.1)
	ns	ns	P<.05	P<.05

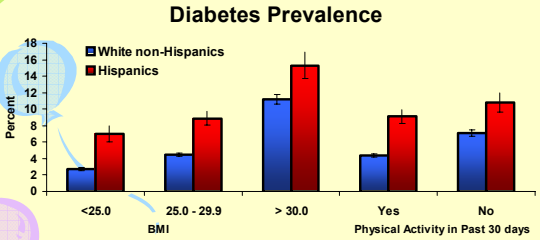
TABLE 2. Prevalence of self-reported diabetes among Hispanics and non-Hispanic whites aged ≥18 years, by selected characteristics — Behavioral Risk Factor Surveillance System, selected areas*, 1998–2002

Characteristic	Prevalence of diabetes: White, non-Hispanic† %	(95% CI§)	Hispanic %	(95% CI)
Sex¶				
Men	5.5	(5.3–5.7)	9.7	(8.7–10.7)
Women	4.5	(4.3–4.7)	9.9	(9.1–10.7)
Education level**				
Less than high school	7.4	(6.6–8.2)	11.8	(10.8–12.8)
High school	5.4	(5.0–5.8)	8.6	(7.4–9.8)
Some college	5.4	(5.0–5.8)	9.1	(7.7–10.5)
College graduate or more	3.7	(3.5–3.9)	7.0	(5.8–8.2)
BMI†††**				
<25.0	2.7	(2.5–2.9)	7.0	(6.0–8.0)
25.0–29.9	4.5	(4.3–4.7)	8.9	(8.1–9.7)
≥30.0	11.2	(10.6–11.8)	15.3	(13.7–16.9)
Participated in physical activity during the preceding month**				
Yes	4.4	(4.2–4.6)	9.1	(8.3–9.9)
No	7.1	(6.7–7.5)	10.8	(9.6–12.0)
Health insurance coverage**				
Yes	5.0	(4.8–5.2)	10.0	(9.4–10.6)
No	5.3	(4.5–6.1)	10.1	(7.7–12.5)
Total¶	**5.0**	**(4.8–5.2)**	**9.8**	**(9.2–10.4)**

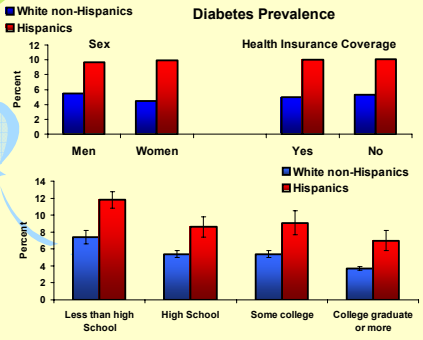
* California, Florida, Illinois, New York/New Jersey, Texas, and Puerto Rico.
† Non-Hispanic whites in Puerto Rico were not included because of small sample size.
§ Confidence interval.
¶ Age adjusted to the 2000 U.S. standard population.
** Age and sex adjusted to the 2000 U.S. standard population.
†† Body mass index (kg/m²) from self-reported weight and height.

MMWR

Demographic Characteristics



Demographic Characteristics



Other Mortality
Disparities Between Hispanics and Non-Hispanic Whites

Higher in Hispanics
- HIV
- Liver disease and cirrhosis

Lower in Hispanics
- Cancer (except cervical)
- Most respiratory diseases
- Unintentional injuries and suicide

Screening

Hispanic females (especially older) are more likely to have their cancer diagnosed at a more advanced stage for
- Breast cancer
- Cervical cancer (Mandelblatt et al., 1999)

Barriers to timely screening include low SES, poverty, low levels of education, knowledge and acculturation* as well as lack of healthcare access and utilization *(Austin et al., 1998)

Other Findings

- Low income (< $10K) and an 8th grade education are correlated with poor perceived health among Medicaid population. Hispanics are more likely to have income less than $20K and less than HS education) (Bierman et al., 2001)
- Access to health care services has a significant effect on health care use and health outcomes. Hispanics have less access. (AHRQ, 2005)

MEASURES

NATIONAL MEASURES

- **National Health and Nutrition Examination Survey** (NHANES)
  - Only nationally representative surveys that examine both diagnosed and undiagnosed diabetes
- **National Health Interview Survey**
  - The NHIS is a survey of a national probability sample of households that asks respondents to provide information about health conditions of each household member.

BRFSS

- BRFSS conducts state-based, random-digit--dialed telephone surveys of the U.S. Civilian, noninstitutionalized population aged ≥18 years in all 50 states, the district of Columbia, Puerto Rico, and other U.S. Territories.
- Misses those without phones
- Restricted to the number of questions asked
- Not good information on diabetes and CVD

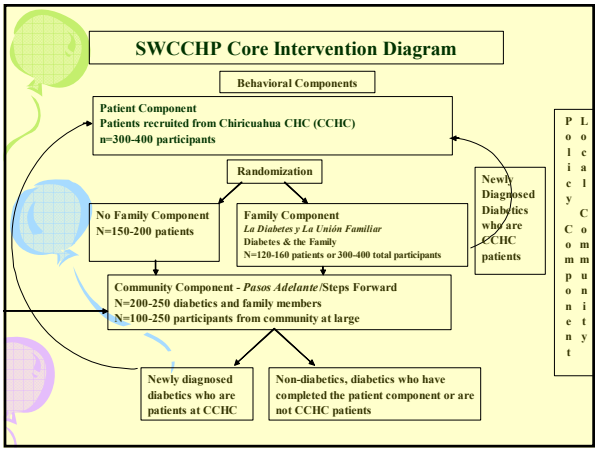
STRATEGIES

SWCCHP

- The University of Arizona, Mel and Enid Zuckerman College of Public Health, Southwest Center for Community Health Promotion (SWCCHP)
  - The SWCCHP Diabetes Prevention and Control Research and Intervention Project
    - PARENT PROJECT

SWCCHP

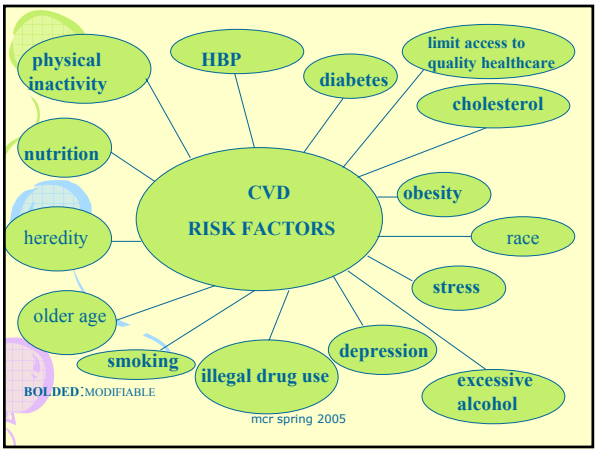
- Three promotores-based behavioral interventions
  - Patient
  - Family
  - Community
- One policy intervention
  - Local Community Advisory Boards (L-CABs)
  - Regional CAB (R-CAB)
- Two Phases
  - 1998-2004 Focus on Diabetes
  - 2004-2009 Focus on Diabetes-Depression & CVD



COORDINATED PROJECT 1

- ASPH/CDC/PRC "Preventing Cardiovascular Disease In Multi-Ethnic Diabetic Patients"
- Educate
  - Patients with diabetes
  - Community health workers (CHWs)
  - Families of patients with diabetes
  - Communities
- The patient, family, and community education are the behavioral components of the "Comprehensive Intervention" performed by CHW's and other health care professionals

What are the Risk Factors for CVD?



Risk Factors For Hispanics Developing Diabetes

- Family history
- Overweight
- Sedentary lifestyle
- Smoking
- Over 40 years of age
- Limited access to quality health care

National Diabetes Education Program

ACTION for Project 1

- Assess CVD is in the Douglas community
  - Patient
  - Family
  - Community
- Develop a profile
  - Like Framingham CVD risk factor score
    - DM prevalence
  - Using Douglas and San Antonio Longitudinal Study of Mexican Americans
    - DM and CVD relationships

MORE ACTION for Project 1

- Develop a **culturally relevant CVD curriculum** that would...
  - Increase physical activity
  - Increase intake of healthy fruits & vegetables
  - Maintain a healthy weight
  - Promote or quit smoking
  - Reduce stress
  - Advocate for quality healthcare

PRODUCT from Project 1 CVD CURRICULUM

- Will have input from
  - Patient
  - Family
  - Community
  - Staff & investigators
- Establish realistic strategies to maintain a healthy weight or to lose weight
- Healthier ways to prepare favorite foods without sacrificing flavor and family traditions
- Exercise that can be performed anywhere. Training patients, families, and communities to become group leaders as well as advocates to assist with securing safer paths for folks to run, jog, walk, skate, and/or bike

COORDINATED PROJECT 2

"A Family Approach to Preventing Cardiovascular Disease": Curriculum & Evaluation"

- A1996 diabetes survey conducted in Douglas, AZ showed: among Hispanics 40 and older, prevalence of diabetes was 20%. This is 2 to 2.5 times higher than among non-Hispanic whites living in the same region.
- This high prevalence of diabetes plus the above mentioned higher rates of CVD in Hispanics, make Douglas a suitable location for developing a family curriculum for Hispanic diabetics and their families.

Healthy *Gente*/Healthy Border (U.S.-Mexico Border Health Commission)

ACTION for Project 2

- To establish a curriculum and its evaluation geared towards developing a module that emphasizes a family approach to preventing CVD and diabetes.
- This proposal will specifically address the Healthy Border 2010 topic areas and objectives listed under the diabetes section:
  - **Reduce diabetes mortality by 10%**
  - **Reduce hospital admissions for diabetes by 25%**
- The curriculum can be used as a stand-alone and will be used to train *promotores* in its use.
- This module if proven successful will go on to serve as a model and can be used independently or integrated into SWCCHP family interventions, and other existing community-based programs.

More ACTION for Project 2

- To develop a CVD and diabetes prevention curriculum and its evaluation for use primarily in our family intervention component
  - Review the NHLBI CVD risk factor curricula already in use in Yuma and Santa Cruz counties
  - Conduct three family focus groups to receive feedback on how families are currently addressing CVD and diabetes prevention
  - Develop a family CVD and diabetes prevention curriculum based on the review and focus groups
  - Pilot test, revise, retest and evaluate the new family CVD and diabetes prevention curriculum

ACTION Cont. for Project 2

- Train *promotores* to use the family CVD and diabetes prevention curriculum in Hispanic communities along the U.S.-Mexico border
  - Conduct training workshops on the new family CVD and diabetes prevention curriculum with *promotores* in Cochise county
  - Prepare *promotores* in helping prevent or mitigate CVD in those with diabetes as well as their families, and thus improve physical activity and nutritional behaviors

Impact of Other Risk Factors (Depression) COORDINATED PROJECT 3 SONRISA

A curriculum toolbox for *promotores* to address depression associated with diabetes in the U.S.-Mexico Border populations

PI: K.Reinschmidt, PhD, MPH

WHY ADDRESS DEPRESSION ALONG WITH DIABETES

- Increased effectiveness of chronic disease prevention and control interventions

Depression and Chronic Disease

- Depression, stress, and psychological distress…
  - increase the risk of chronic disease
  - have effects on chronic diseases (Black, SA)
- Chronic diseases and unfavorable health conditions
  - increase the risk of depression
  - have effects on depression
- Depression and/or anxiety affects over half of the patients with diabetes (Gallagher, S)

Disparities in Depression

- Culture influences how depression is experienced and expressed (Gallagher,S)
  - Rates are higher for Hispanics than non-Hispanic Whites and Mexican immigrants.
- By gender (Burvill, PW)
  - Women and men experience and express depression differently. Women have higher rates than men.

Studies on Depression With Hispanic Women in AZ

- Preliminary studies (Castro, F) show that
  - more acculturated Hispanic women have higher levels of depression
  - depression negatively impacts daily activities

SONRISA Objectives

- To develop a depression curriculum toolbox for promotores to use in the primary prevention of depression associated with diabetes
  - Healthy *Gente*/Healthy Border Mini Grant (USMBHC) 2004

Focus Groups Showed That Promotores Need…

- To address the prevention and management of depression together with the prevention and management of diabetes
- To prevent their emotional burn-out when helping patients and their families cope with diabetes and other day-to-day issues

HEALTH CARE PROVIDER-PATIENT RELATIONSHIPS

Provider Education

- Awareness
- Training
- Reinforcements

Potential Reasons for Ethnic and Social Health Disparities

- Biologic factors
- Environmental factors
- Socioeconomic status
- Health risk behaviors
- Psychosocial factors
- Cultural factors
- Access and utilization of health services
- Quality of care

Provider and Organizational Barriers to Diabetes Control

Provider factors
- Knowledge
- Self-efficacy
- Role perceptions
- Practice patterns
- Communication style

Organizational factors
- Scheduling
- Staffing
- Disease management
- Location
- Provider continuity
- Transportation
- Child Care

Interventions to Improve Patient Adherence

- Most interventions have educational, affective, or behavioral emphasis; few are comprehensive
- Interventions with multi-focus including affective emphasis show strongest adherence effects
- Diabetes interventions show largest adherence effect with medication regimens, medium effect size for appoint-keeping, and modest effect sizes for disease management (Roter et al, 1998)

Patient-Provider Communication and Health Outcomes

- Interpersonal care related to higher levels of patient satisfaction and better health outcomes (Greenfield et al, 1988, Kaplan et al 1989, Stewart et al, 1998)
- Visits in which physicians use a participatory decision-making style are associated with higher levels of patient satisfaction (Kaplan et al, 1995)
- Informativeness, interpersonal sensitivity, and partnership-building associated with patient satisfaction, compliance, and recall of information (Roter DL et al, 1988)

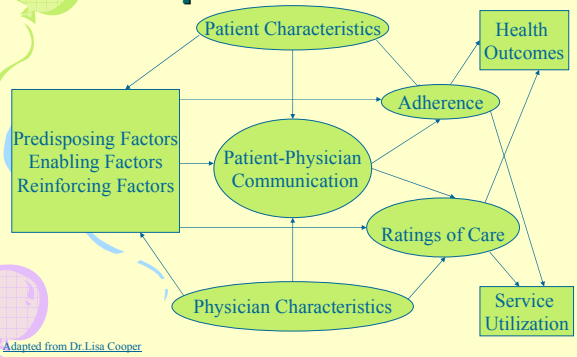
Patient Race, SES, and the Patient-Physician Relationship

- Physicians offer less information, support, and clinical proficiency to ethnic minority and lower SES patients
- Physicians perceive African American and lower SES patients more negatively on several dimensions than whites and upper SES patients (van Ryn & Burke 2000)

Patient Race, SES, and the Patient-Physician Relationship

- Ethnic minority and less educated patients rate their visits with physicians as less participatory than white and more educated patients (Kaplan 1995,Cooper-Patrick 1999)
- Patients seeing physicians of their same race are more satisfied and rate their physicians' decision-making styles as more participatory (Cooper-Patrick 1999)

Conceptual Framework



Adapted from Dr.Lisa Cooper

Patient Intervention Goals	Three-stage Participatory continuum	Physician Intervention Goals
Increase belief in acceptability of patient engagement and patient disclosure of adherence barriers and concerns	Patient engagement Predisposing factors	Improve data-gathering skills
Increase skills in asking questions, discussing treatment options, joint decision-making, overcoming communication barriers	Patient activation Enabling factors	Improve partnership and patient education and counseling skills
Improve communication confidence and competence, reduce conflict, enhance collaboration, social support from CHW telephone calls and photo novella mailings	Patient empowerment Reinforcing factors	Improve relationship skills

ACCESS TO HEALTHCARE

Barriers	Use of Services	Mediators	Outcomes
Structural	Visits	Appropriateness	Health Status
	Procedures	Efficacy of Tx	
Financial		Pt-Dr	Equity of Services
		Communication	
Personal		Patient Adherence	

Adapted from Institute of Medicine, National Academy Press, 1993

CONCLUSIONS

Major health disparities in Hispanics are present for diabetes as well as other major risk factors (obesity, low physical activity, poor diet, elevated lipids, high blood pressure, and depression to name a few) that results ultimately in some form of cardiovascular diseases.

Prevention, education, treatment, and control programs must target Hispanic diabetics to prevent, reduce, and /or eliminate future morbidity and mortality health disparities.

FINAL CONCLUSIONS

Eliminating these disparities will require culturally appropriate public health initiatives, community support, and equitable quality health care.

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Thank You


QUESTIONS?